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VOLUME LII JANUARY, 1953 NUMBER 1

LULEÅ AND NARVIK: SWEDISH ORE PORTS

LUCILE CARLSON
Western Reserve University

Sweden's iron-rich, phosphorus-rich ferrous ore that has become so important to the iron and steel industries of Central Europe, Western Germany, Great Britain and of other West European nations, located far from the tracks of world commerce, finds its way to the blast furnaces and steel mills of industrial centers thru two small, isolated and otherwise insignificant Scandinavian ports, Narvik, Norway and Luleå, Sweden.

The locale in which this ore is found is far north in Norrbotten, the great Lappland province of northern Sweden. It is a virgin and frontier land. Scattered thruout the area in several districts are the rich deposits of iron ore known as the Lappland reserves (Fig. 1). The largest of the proven deposits are located near Kiruna and Gallivare.

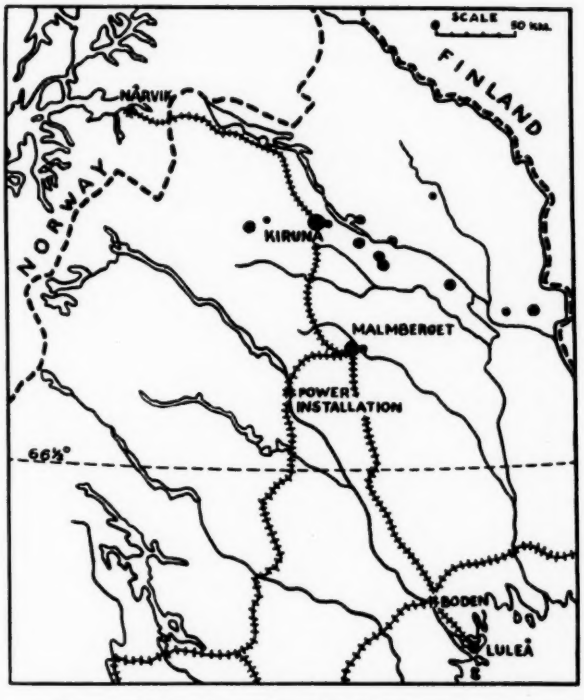

FIG. 1. Detail of northern Sweden showing the most important of the proven iron ore deposits. Only those of Kiruna and Malmberget (Gallivare) are being worked at present. Also indicated is the ore railroad which extends from the mine fields to the ore ports of Narvik and Luleå. Courtesy Luossavaara-Kirunavaara Aktiebolag.

Together these mines, large parts of which contain up to 70 per cent iron, have an estimated reserve of 2000 million tons.

Tho the existence of this ore has been known for several centuries, commercial exploitation is of comparatively recent date because of two factors: 1. the ore, tho among the richest in the world, is high in phosphorus content and awaited the invention of the Thomas-Gilchrist process for making steel (1878) before economic production and export could begin; 2. up until 1890 the iron from these interior mines remained practically inaccessible for the markets of the world.

Before the problem of the transportation of the ore was finally solved by the railroad connections between the mines and the ports of Luleå and Narvik, many expensive and unsuccessful enterprises were started with the view to connect the ore fields with the sea. Since the Gulf of Bothnia, on which any Swedish port would be located, freezes over for about four months during the year, the Norwegian coast, ice-free and indented with many protected fjords, was the other and better alternative. In the late nineteenth century a British group attempted to build a railroad from the Norwegian coast inland to Kiruna. However, they were not prepared for nor, in the long run, able to overcome the obstacles that were encountered in laying the tracks across the mountainous terrain. Further difficulties were presented by the winters which, due to the heavy snowfall, the severe cold and the long continuous period of the Arctic night, frequently forced an interruption of the construction. After five years the English were finally forced to abandon the project.

Southward to the Gulf of Bothnia no such difficulties stood in the way. Luleå was best suited of all Norrbotten ports for the shipment of the ore. It was again English capital that projected the railroad and that at last established the connection between the sea and the mines by constructing a single track from the southernmost fields at Gallivare to Luleå. Iron ore began to move along the railroad to the Swedish coast in 1888.

Thru the combined efforts of the Swedish and Norwegian governments, which at that time were united under the Swedish king, the border railroad between Narvik and Kiruna was finally constructed thru the difficult terrain and, 14 years after the opening of Luleå to the Lappland fields, Swedish ore arrived at the Norwegian port for export.

TRANSPORTATION CONNECTIONS OF THE PORTS

Narvik and Luleå are Arctic or sub-Arctic in latitude and hence marginal in location both nationally and globally. Broad distances of nearly empty forest, marsh and marginal farm lands lie between Luleå and the more heavily-populated and important industrial and agricultural centers in southern Sweden. Railroad mileage within Norrbotten is limited and parallels the coast at a short distance inland connecting the major population nodes which likewise tend to cling to the seacoast unless located inland by the exploitation of mineral or timber resources. Boden, to the east of Luleå, is the railway center thru which all trains pass. The branch-line character of the railroad to Luleå out of Boden is evidenced by the facts that engines on passenger trains bound for the port are changed here, and that the ore-cars from the mine fields must pass thru Boden on the way to Luleå and then double back before returning to Gallivare or Kiruna.

From Boden the Gallivare and Kiruna ore beds are connected with the Norwegian coast at Narvik by an electric single-tracked railway called the Ore Railroad. The section of road extending west from Kiruna is known as the border railroad and, tho only 90 miles long (72 on the Swedish side and 18 on the Norwegian), is a difficult and impressive run of track descending on the Norwegian side with great abruptness to the sea. Because of the ruggedness of the terrain and the heavy precipitation in winter which falls in the form of snow on the mountains, only the many tunnels and snowsheds make possible the steady shipment of iron. By close scheduling across this single track, which is multiple at the infrequent stations along the route, some 700 cars of ore and an equal number of empty cars (for the ore trains return empty) pass daily between the iron-mining town of Kiruna and Narvik, its Norwegian port. At Narvik the single rail line spreads to become a net of over 25 miles of steel rails along the waterfront.

Besides the 40-odd miles of railroad that extends north of the sixty-six and one-half degree parallel to connect Lonsdal with Bodo, the government-owned Narvik spur is the only railroad in Norway north of the Arctic Circle. Built as an outlet for the Swedish mines it is heavily used, for land-haulage of the ore is cut in half by shipping thru Narvik instead of Luleå.

The isolation of Narvik is even greater than that of the Swedish port. Rugged mountainous topography, deeply cut by fjords that

penetrate far into the peninsular coast, make land travel between northern and southern Norway difficult.

THE PORT OF LULEÅ

Luleå is located near the island-studded mouth of the Lule River, 10 miles inland from the point where the stream empties its waters into the Gulf of Bothnia (Fig. 2). Originally the town had been

FIG. 2. Luleå lies about 10 miles up the island-studded mouth of the River Lule. The central part of the city is located on a hook-shaped peninsula surrounded on three sides by water.

established at a site six miles farther upstream near the famous old Nederluleå church where, as far back as the Middle Ages, peasants congregated at certain seasons to carry on trade with the Lapps. The Nederluleå location was not well chosen however, for the river at this point proved to be unsuitable to the development of a harbor and the river passage to the sea was navigable to small vessels only. In addition, due to the progressive rising of the coast around the upper portion of the Gulf of Bothnia by about three feet per century, the connection with the sea grew constantly worse. Consequently in 1649 the town was moved to the present location. Peninsular in its situation, the latter site provided adequate harbor facilities and presented fewer difficulties to ships passing from the sea to the river port.

The development and prosperity of Luleå is intimately linked with the export of iron ore from the Gallivare and Kiruna fields. Without the Lappland ore Luleå would undoubtedly have remained a small and relatively insignificant village-port of only local importance. At present, in addition to its port function, with a population of 20,000 it is the largest and most important town of the province and serves as the administrative and trading center for the entire northern area.

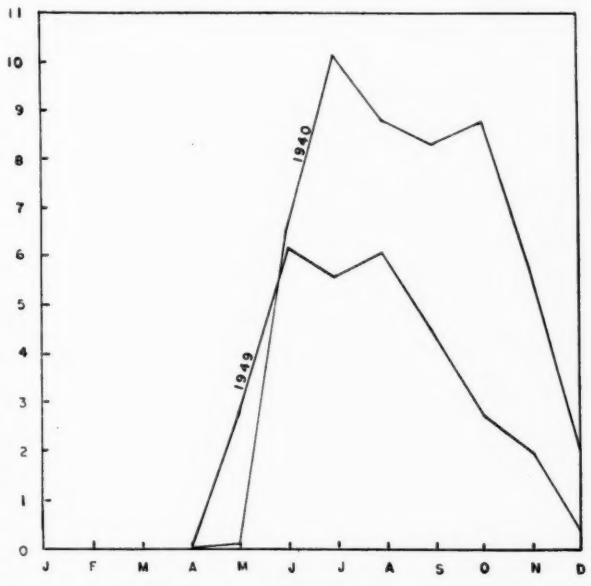

FIG. 3. Monthly ore shipments from Luleå Harbor, 1940 and 1949 (100,000 tons).

Luleå harbor is a well-protected and natural haven with a ship capacity of 30 vessels. Tho the river channel to the open waters of the Gulf of Bothnia is narrow and difficult to navigate, necessitating at times the employment of tugs to guide the loaded out-going ore boats thru the tedious passageway, the width and depth are such that vessels drawing up to 23 feet of water are able to enter the harbor. Rarely are ore-carriers larger than this. Nor is silting a problem for so little material is deposited along this shipping lane that dredging has not been necessary since 1945. However, since the Gulf of Bothnia freezes over for four or five months of the year, Luleå becomes inaccessible to vessels during the winter period and all export of ore is stopped. Ocean transport begins in May and ends between the first and tenth of December. Nevertheless, the ore from the mines keeps rolling into Luleå by train all winter long according to quota and is accumulated near the docks in the storage yards that have a two million ton capacity (Fig. 3).

The port (Fig. 4), including docks for general cargo, the wharves of the government-owned iron-works and the ore docks of the Swedish State Railways, lines three sides of the peninsula and extends along the river to the south beyond Svarton. The gen-

eral wharves, which in function import and do little exporting, are located around the periphery of the peninsula. Paper pulp from nearby Karlshall is the only product that is shipped out thru these installations. The docks of the iron-works take care of the shipping needs of the steel company, while the ore wharves, located at Svarton to the south and east of Luleå proper and owned and administered by the State Railways, are used exclusively for the export of iron ore. Consisting of two loading docks, one of which has anchorage along two sides, these projecting piers allow for the simultaneous charging of three vessels and have a combined capacity of 30,000 tons of ore.

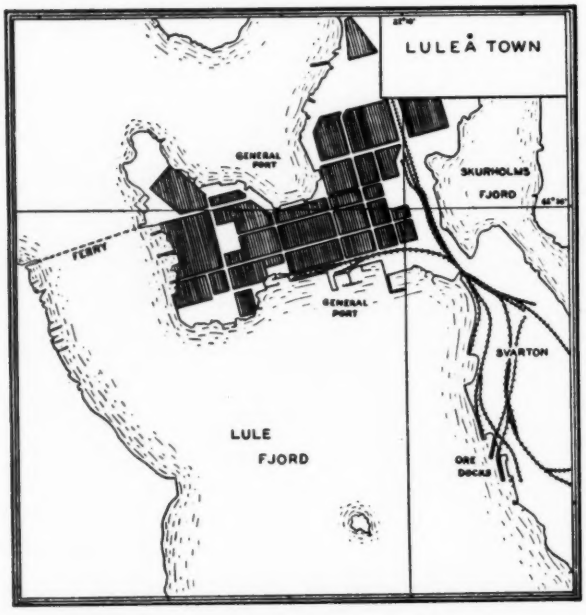

FIG. 4. Luleå town and harbor area. The general port extends along the northern and southern sides of the peninsula while the ore docks are located off Svarton to the south. Courtesy Swedish State Railways.

Svarton is the multiple reason-for-being of Luleå harbor. Here is the railroad terminus for the ore railroad, the ore docks and the storage yards where the great hills of iron await shipment during slack seasons. Here too is the site of the government-owned iron and steel works, Norrbottens Jernverks Aktiebolag, begun in 1940. Luleå was chosen for this State-owned enterprise for a number of reasons, the most obvious being the proximity to both the Lappland ore fields and to hydroelectric power.

THE PORT OF NARVIK

Contrary to what is true in Luleå, Narvik is for ore export and that only.

Far inland on a fjord that reaches to within five miles of the Swedish border, the city is situated on a point of land where three

fjords meet. The great water inlet cutting deeply into the country is a series of connecting fjords that are known by a number of names. Vestfjorden, the outermost, is a huge funnel-shaped body of water with a northeast-southwest trend. Bordered to the south and east by the irregular and fjorded coast of the Norwegian mainland, the Lofoten Islands arch themselves to enclose it on the northwest. Narrowing at the eastern end to a strait (Fig. 5), the fjord again

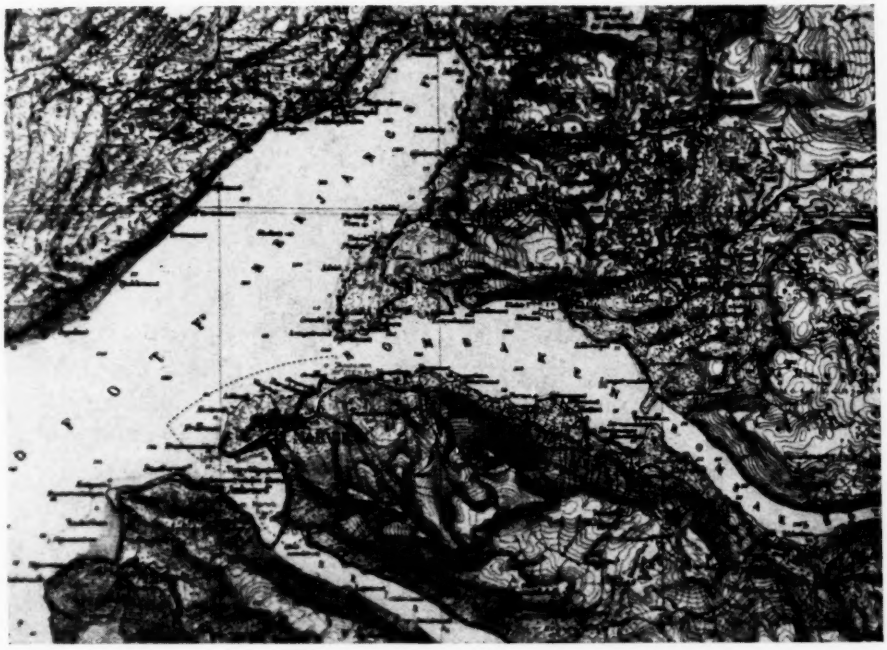

FIG. 5. The situation of Narvik. Notice the almost circular shape of the bay which is sheltered to the northwest by the peninsula. Narvik is located on the south side of this peninsula. From a map by the Norges Geografiske Opmaling.

widens to form the shorter, broader basin of Ofotfjord which in turn splits into the trio of inlets which lie to the eastward of Narvik, namely Beisfjord, Rombak Fjord and Herjangen. Narvik lies on the spur of land that separates Beis and Rombak fjords.

Its reason for being is Swedish iron and it is the port function that defines Narvik. Until the first train to Narvik in 1902 brought ore to its harbor for shipment from the Luossavaara-Kirunavaara fields of northern Sweden, there was no settlement at the present site except a small trading post and a lone homestead. Prior to the outbreak of World War II however, it had become the major outlet

for the rich ore deposits of Swedish Lappland and had a population of upwards of 10,000 people.

During the war Narvik was all but destroyed. Port installations were demolished so that by June, 1940, two months after the city was attacked, nothing could be shipped out of the harbor. Not until 1945 were they able to resume any shipment of ore. Tho 19 vessels still rest on the floor of the bay, the harbor and port installations

FIG. 6. Close-up of the ore port and docks at Narvik looking toward Fagernes Mountain. Typical of the terrain thru which the border railroad passes, and that surrounds Narvik on all sides, is the mountainous topography seen in the background of the picture. Courtesy Norwegian Information Service.

have been completely reconstructed to prewar capacity and with improvements.

Narvik harbor, which occupies the mouth of Beisfjord, is a natural basin, circular in shape and sheltered by the tip of the peninsula as it curls around to cut off half of the water opening into Ofotfjord (Fig. 6). Tho far inland and well-protected, the depth of the harbor varies as an incoming and outgoing tide raises and lowers the water level from 15 to 18 feet twice daily. The bay has a capacity of 36 vessels.

The various wharves and piers occupy the same position as in pre-war days. The general harbor, located along the east side of the bay, is used for commercial traffic other than ore shipment. It receives most of the imports handling the Norwegian shipping, and coastal and passenger trade. To the south of the general harbor is the fishing quay and, paralleling the south side of the bay, the Railroad Quay, a wharf belonging to the State Railways but having no connection with the export of the iron. Along the north side of the bay are the ore docks.

Iron ore makes up nearly 100 per cent of the exports of Narvik harbor. This goes out entirely thru the ore docks. With a moorage capacity of 3500 feet, the present facilities more than equal those prior to the war. The docks are composed of a wharf extending parallel with the bay and a pier that projects into the water with dockage space along two sides. The pier, installed since the war, is equipped with a conveyor-belt system which carries the ore directly from the crusher to the pier, a distance of 1970 feet. Two new movable loaders, one on each side of the pier, can be manipulated into position directly above the holds of the ships.[1] The greater maneuverability of the equipment and the fact that two ships can be simultaneously charged at a pier, each at half the former loading time, has greatly raised the tonnage capacity of the Port of Narvik.

Tho the land on which the port installations stand is leased from the Norwegian government, the ore docks are owned by the Swedish mining corporation, Luossavaara-Kirunavaara Aktiebolag.[2] The ore port, however, is administered entirely by Norwegians in the employ of the mining company. When work on the docks was begun at the turn of the century, an agreement was worked out between the Swedish and Norwegian governments and

[1] This equipment at Narvik is unique from all others of its kind in one respect, that is, in the manner in which the samples of ore are taken. As the ore drops from the conveyor belt into the loader, specimens are caught in a special container that swings around periodically and automatically thru the dropping ore, takes a predetermined quantity of the mineral and dumps it off to one side in a separate bin. The size and frequency of the samples is fixed by the buyer. Repeated sampling is necessary because of the many grades of iron ore shipped from the Kiruna mines. According to the director of the docks over 50 grades of ore are involved, perhaps a greater number than is found any place else in the world.

[2] Luossavaara-Kirunavaara Aktiebolag owns the mines at Kiruna and Gallivare. Fifty per cent of the stock is held by the Swedish government, the other half by the private concern, Trafik Grangesberg-Oxelosund.

Luossavaara-Kirunavaara Aktiebolag under the terms of which the company was to pay taxes to the Norwegian government as would any citizen of Norway and, to the Norwegian State Railways, pay ordinary freight rates per ton of ore handled. The contract stipulated a minimum amount of ore to be guaranteed annually for railroad haulage. This agreement, renewable every 10 years, is basically the same now as then. Any necessary adjustments are made at the time of renewal.

ORE EXPORTS

Luleå and Narvik do not compete with each other for the shipment of iron. In fact they are reciprocal thru agreements worked out between the State Railways of Norway and Sweden and the mining company. All of the Kiruna ore goes out thru Narvik except two trainloads daily which are sent thru Luleå, while all of the Gallivare ore from the Malmberget fields is shipped thru Luleå except two daily trainloads which go to Narvik. If demand for ore forces either Kiruna or Gallivare to increase the number of trainloads of ore to either port—thereby reciprocally decreasing the quantity shipped to the other—the deficiency at the latter port must be made up by increased shipments from the other producing area. This is true for two reasons: 1. as stated previously, the agreement with the railroads requires a given amount of ore to be shipped over the rail lines; 2. the Swedish government regulates the amount of ore that can be shipped from each mining field. Contrary to what is often thought, Narvik does not act as an alternative port for Luleå even during the winter months when the Baltic is frozen over.

It is not likely that Luleå will ever compete with Narvik as a port for the shipment of ore. This is not necessarily because of the closed condition of the Swedish waterway, but rather due to the facts that the largest producing mines are closer by rail to Narvik than to the coast of the Gulf of Bothnia and because the Norwegian port is nearer to the major markets of Europe.

The total number of ships entering the port of Narvik is large considering its size and hinterland (Table 1). They come to carry away ore however and not to leave imports or to pick up cargo other than iron, for Narvik has no large industry, hinterland or population to demand merchant steamers. In 1949 the largest import, coal, amounted to only 7683 tons. Of the boats calling at Narvik therefore most are ore carriers, the greatest number of

them Swedish, and of these Swedish vessels the greater percentage is owned by Luossavaara-Kirunavaara Aktiebolag.

TABLE I[3]

COMPARISON OF THE ORE CARRIERS TO THE TOTAL NUMBER OF SHIPS ENTERING NARVIK HARBOR

	Total Number of Ships[4]	Ore Carriers[5]	Tons of Ore
1930	608	596	4,900,000
1935	557	553	3,800,000
1940	204	188	1,300,000
1945	95	95	640,000
1946	420	420	3,000,000
1947	682	682	4,900,000
1948	901	901	7,100,000
1949	887	887	7,300,000
1950 (Thru July)	501	No figures	No figures

As the table indicates, postwar years show a marked increase in both number and tonnage of ships as compared to the years previous to 1940. The small figures of 1940 and 1945 are accounted for by the fact that all shipping was stopped in June, 1940, and was not resumed again until late in 1945. A comparison of pre- and post-war figures of ore exports indicates that shipments are now almost double those prior to 1940 (Fig. 7).

In contrast to this, 3 to 4 hundred ships normally enter the bay at Luleå to carry off some two and a half to three million tons of ore, less than half the quantity of iron that is shipped thru its sister port, Narvik.

TABLE II[6]

SHIPS CALLING AT LULEÅ HARBOR AND TONS OF ORE EXPORTED

	Total Number of Ships	Tons of Ore
1930	320	2,055,000
1935	192	1,388,000
1940	927	5,000,000
1945	91	201,000
1946	319	846,000
1947	474	1,570,000
1948	526	2,162,000
1949	683	3,000,000
1950	No figures	About 3,000,000

Notice however that during 1940, after the port of Narvik was destroyed, 927 ships called at Luleå and five million tons of ore

[3] Fishing craft and the passenger vessels that ply between Narvik and other ports of Vestfjorden are not recorded in this table.

[4] Statistics taken from the record books of the Harbor Captain, M. R. Neilsen, Narvik, Norway.

[5] Statistics taken from the record books of Luossavaara-Kirunavaara Aktiebolag, Narvik, Norway. (Note: Figures in all tables are quoted on an annual basis from 1945 and on to indicate the rate of return to equilibrium since the war; previous to that date every five years.

[6] Statistics taken from the record books of the Ore Docks, Luleå, Sweden.

were shipped from its wharves, and also that the number of ships and the tonnage of ore exported is steadily increasing.

Before the war England and Germany were the biggest buyers of ore shipped thru both ports, while in 1949 about 30 per cent of the iron shipped thru Narvik went to Belgium, 20 per cent each to Britain and the United States, 10 per cent to Germany and eight per cent to the Netherlands. Norway took the negligible amount of 20,000 tons. Czechoslovakia and Germany have been the heaviest buyers of the ore that funnels thru Luleå, with England, the United States and Poland ranking next in the order stated.

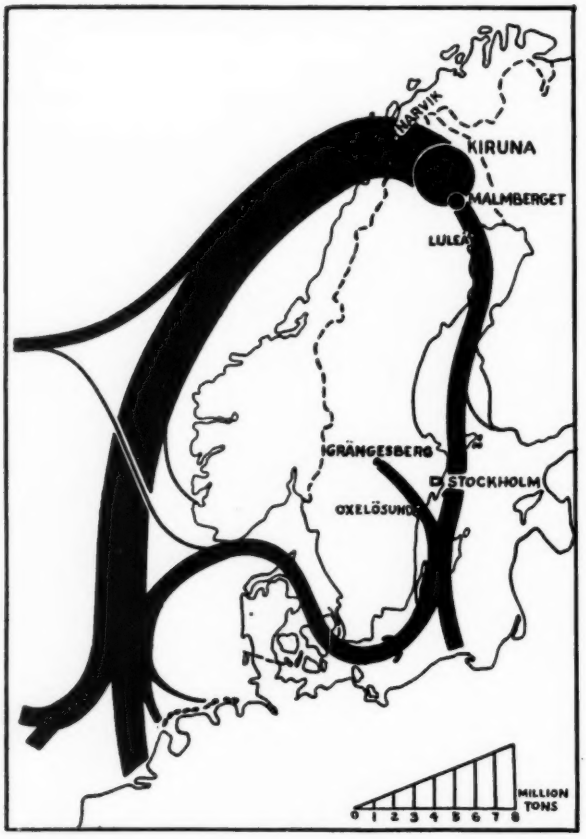

FIG. 7. Flow of ore thru Narvik and Luleå, 1948. The circled numbers indicate the destination of the ore: 1. United States; 2. England; 3. Belgium and Luxembourg; 4. Germany; 5. Czechoslovakia and Poland. The Grangesberg mine in Central Sweden is the only exporter of iron from that part of the country. Courtesy Luossavaara-Kirunavaara Aktiebolag, Kiruna, Sweden.

FORECAST FOR THE FUTURE

If present production levels are approximately maintained, the Swedish Lappland reserves are estimated to last for 500 years. This means that Luleå and Narvik will ship ore for a long time.

Tho mountains and fjords bear their impress upon Narvik; it is iron ore that justifies the existence of the port. The many boats in the harbor and the noise of the falling ore as it is poured into the holds of the vessels serve as reminders of the fact that but for the Kiruna mines and the iron that funnels thru the port this outlying Norwegian city would not be there, for the Norwegian hinterland provides no sound basis for the establishment of trade. Narvik,

many miles off the regular coastal routes, is by-passed by the ships that carry the tourist trade up and down the fjorded peninsula to and from the "land of the midnight sun." Small fjord boats, scheduled two or three times weekly, ply between Narvik and the Lofoten Island ports to connect it with the major north-south coastal seaways.

Luleå is more favorably situated for an existence independent of the export of ore. At the present time the Swedish government is in the process of carrying out a plan to develop and exploit all of the resources of Norrbotten. The iron and steel plant alone is sufficient to bring prosperity to this small northern city. However, the steel plant and the government plan for the development of the North are both the result of the exploitation of the rich iron deposits and, in all likelihood, would not have been undertaken but for that.

The Lappland ore represents seven per cent of the known iron reserves of the world. The importance of these deposits in international terms becomes more significant when compared with the resources of some of the great powers: the proven iron ore deposits of the Soviet Union are but 11 per cent of the total world reserves, those of the United States but 10 per cent.[7]

Aside from the economic aspects of the deposits themselves, the geo-political character of their location is worth appraisal. Narvik and Luleå provide the only outlets and, tho Narvik will perhaps remain the more important because of the reasons previously pointed out, the fact that Luleå faces the Baltic, a nearly Russian-controlled sea, could have ominous implications for the future.

[7] *OIR Report No. 4260, April 30, 1947* (Washington, D.C.: Department of State, Division of International and Functional Intelligence, Office of Intelligence Research, 1947).

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CONSERVATION EDUCATION CAN BEGIN IN THE EARLY YEARS

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From the numerous articles being written, there is evidence of an increasing concern about the lack of behavioral evidence that people are really conservation conscious. Professor Whitaker rightfully stresses the need for better application of our conservation knowledge.[1] His evidence shows that we are not yet managing resources economically.

Some conservationists believe that the kind of conservation teaching in our colleges and high schools is inadequate in developing good attitudes and behavior in conservation. This writer feels that the following is one important reason for the above-mentioned condition: Educational evidence has shown that one cannot wait until early adulthood to develop attitudes and behavioral patterns; one must begin instead within the early childhood period.

With this in mind, one can readily see that conservation education can begin way down. It can begin in the kindergartens and early elementary grades in the everyday living of the child. True, the five year old may not understand the lumber problem, but concepts can be introduced thru kindergarten activities. For example, the use of a paper towel in such a way as to avoid need for more and thus cause unnecessary waste can lead to a very elementary discussion of the source of paper, the large amounts of paper needed and the problem of utilization to avoid waste. Simple activities such as returning borrowed items, storing milk or fruit juice in the school cooler, learning to relax and rest during the day, can lead not only to the building of an attitude that it is necessary to conserve human and natural resources, but also to the realization that at times school rules (and in adult life, government rules) are needed to stop unwise use and destruction. Children can also, thru the educational processes that go on in their classrooms, begin to understand the need for education and re-education to help those whose behavior shows they are not yet conservation conscious.

The beginnings of conservation in early years can go beyond the paper towel stage. Flowering pots can lead to concepts in soil con-

[1] J. R. Whitaker, "Conservation and the College Professor," *Peabody Journal of Education*, 1950, 331.

servation—ideas of watering and drainage.[2] A trip to the school furnace may make a lasting impression upon young children as to the amount of mineral resources used and the problem of wise utilization that we all face.

Pets are an excellent way to introduce conservation of living things, particularly the conservation of human energies. Children who see a pet rest after a strenuous activity are more willing to rest after a strenuous activity in which they participate.

Altho these examples may be considered by some as indirectly related to a study of conservation, one should realize that they are the beginnings of the building of attitudes, habits of thinking and patterns of behavior. As the child progresses from grade to grade, he can study his daily activities in relation to conservation problems a little more deeply until at the high school level he will not only have concepts needed to understand problems of conservation, but also an attitude of appreciation of the problems plus the habit of doing something constructive about them.

[2] Thomas F. Barton, "Teaching Soil in the Lower Grades," JOURNAL OF GEOGRAPHY, XLV (1946), 309.

RESOURCE UNIT: JAPAN FOR THE SIXTH GRADE*

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Not a unit of study indicating when to do what—a decision which must emerge from cooperative teacher-pupil planning—this *resource* unit possesses the prime function of assembling a variety of ideas and tools for effective classroom planning and procedures. It is the writer's belief that as functional geography plays an increasingly important and necessary part in helping thinking youngsters to secure new facts, basic principles and sound appreciations about our world neighbors, teachers can best aid pupils to see relationships when resource units provide nuclei for interrelated classroom activities.

* A mimeographed and rather complete annotated resource bibliography of teaching-learning aids for teachers and pupils can be secured without cost by writing to G. Allan Laflin, Director of Public Relations, Western Illinois State College, Macomb, Illinois.

Human geography is not learned in isolation from history, literature, English, writing, spelling, science, art and most other commonly taught subjects. Depending upon the nature of the unit and the purposes for which it is taught in a particular classroom, the actual *teaching* unit will stress to different degrees the various subject correlations. It is believed that teachers of intermediate grades may secure some useful concepts and ideas from a *resource* type unit, which should be a servant for them as the *teaching* unit evolves. Altho separate readers may question specific content omissions or inclusions, they should be interested here primarily in recognizing useful concepts inherent in a *resource* unit approach.

Limitation of space herewith eliminates the extensive and varied bibliography for this resource unit. Naturally the alert teacher will utilize all available resources when planning her unit on Japan. Should this discussion stimulate similar unit development for other geography topics, the wise teacher will prepare and file a fairly exhaustive resource list of all kinds of books, films, tools and materials for future reference by both teacher and pupils. Such practice saves much time and effort in each year's planning.

SUBJECT MATTER OUTLINE

1. Location—with reference to latitude, Illinois, United States, Asia, Korea, adjacent water bodies and the great circle route from Chicago or St. Louis. Compare location with that of British Isles.
2. Main islands—general topography—concept of young rugged mountains. Honshu and Hokkaido—receive most emphasis.
3. Climate and its effect on the Japanese.
4. Brief history of Japan.
   a. Origin
   b. Perry—1854
   c. Growth of modern Japan
   d. Japan's place in current history
      (1) American military occupation
      (2) Japan's progress toward successful democratic rule
      (3) Japan's relation to Korea
      (4) Continuing problems Japan faces with U.S.S.R., China, and United States (The extent to which these can be discussed depends upon the interest and "social problems" maturity of the class.)
5. Frames of reference for securing a better understanding of the Japanese (avoid stereotypes).
   a. Homes—family life
   b. Schools
   c. Customs, sports, love of beauty
   d. Food and dress
   e. Other. (Especially in Part 5 will children be able and eager to contribute ideas for individual and group research.)

6. Ways of earning a living—main industries
   a. Manufacuring
   b. Forestry
   c. Farming
   d. Fishing
   e. Mining
   f. Commerce and trade
   g. Other

   (Teacher-pupil planning will establish pattern of procedure for committee work.)

STIMULATING MATERIAL AND POSSIBLE APPROACHES

1. Unfortunately children often secure false impressions about foreign peoples. To clarify such notions and also to stimulate pupils immediately to think of geography in terms of people interacting with total environment, the following introduction may be used:
   a. Choose two eggs of similar size and shape, one brown-shelled, the other white.
   b. Hard boil at home or in school kitchen.
   c. Begin first day's discussion by holding the two eggs before the class and ask youngsters what the difference is between the two eggs.
   d. The obvious answer concerning color will come.
   e. From here in a few minutes an animated discussion will reveal that color (pigmentation) is only "skin" deep and all other parts of the egg have identical characteristics.
   f. Teacher can then help class to see that the Japanese and other darker skinned peoples differ from most Caucasions only in amount of pigmentation. Blood types, bone and muscular structures, and brain and nervous systems are the same in all races of homo sapiens.
   g. Such an approach, tactfully handled by the teacher, should help to encourage students to carry on individual and group investigations during the unit with the concept that the Japanese possess the same basic desires, capabilities and needs held by all human beings.
2. Minus teacher comment, a short time before the new unit is to begin have a variety of interesting, colorful pictures of Japan on a special bulletin board. Legible labels under each picture are desirable. Be alert to overheard comments and use as basis of introductory remarks geared to known pupil interests.
3. On the free reading or browsing table "plant" several interesting, and if possible well-illustrated, fiction and non-fiction books about Japan and her people.
4. In one corner of the room may be a display table or shelf on which realia (secured from ex G.I.) may be arranged. Children should know which of these may be manipulated and handled.
5. The unit may be successfully launched by utilizing desirable transfer of training techniques. Current events discussion on Japan may offer one aspect of this Far Eastern country known to the children. Such "background" may be a springboard for learning more about Japan. During this unit be daily alert to current "Japanese" news.
6. Motion pictures or film strips may be used for introducing a unit. This can be overdone; in general, it seems best to use films as a specific teaching tool as the unit progresses or as an effective summation of the unit.
7. A community member who has been in Japan, or better yet a Japanese, possibly a student on campus, may talk to the class. Such a person should be informed of the purpose of the present teaching unit. As much as possible, he should be encouraged

to gauge his remarks to match the general purposes of the unit as well as the age of the pupils.

8. To stimulate interest and to also detect faulty or inadequate thinking, this initial procedure may be used. List on the blackboard facts and concepts the pupils offer about Japan. After complimenting them on their contributions, indicate by appropriately placed question marks the suggestions not completely true or insufficiently developed. Now have the class compile another list on an adjacent board. Here include all ideas for improving knowledge of Japan. This easily leads into several sessions of cooperative teacher-pupil planning of content, committees, activities and the like. Have class secretary retain record of proceedings and decisions.

POSSIBLE LEARNING ACTIVITIES

1. Some children may wish to compile their own booklet of information about all or special aspects of Japanese life. In such an activity individuals can emphasize art, poetry, industry, etc. as they wish. Teacher guidance is always needed. Do not demand picture collecting.
2. A particular student interested in stamp collecting may share with the class his knowledge of Japanese stamps.
3. An investigation and reporting on some current famous Japanese people may be utilized.
4. Games played by Japanese boys and girls may be tried. This necessitates some pupils' securing accurate information and beginning skill in the game selected. Cooperate with the physical education teacher.
5. Group murals or individual paintings may provide for creative expression. Here the art supervisor can be helpful.
6. Individuals or groups may wish to make a series of relation-showing maps of Japan. Regular desk outline maps, or better yet, enlarged outline maps on brown or white wrapping paper, may show:
   a. political boundaries and key cities.
   b. mountains, plains, plateaus (relief or colored—).
   c. seasonal climate.
   d. population density.
   e. products and key industries.
   f. vegetation.
   g. other.
7. Time-lines are employable to help visualize the age of Japan. Mathematics concepts are employed.
8. Charts and graphs can be used in many ways to accentuate pertinent concepts and to functionally apply arithmetic procedures. For example, facts about exports and imports, population increases, persons engaged in various industries, seasonal precipitation fluctuations, etc. can be presented visually in this manner.
9. During the unit a special bulletin board corner can be reserved for news items about Japan. This may degenerate into a meaningless task.
10. Pupils may write to Japanese children. (Excellent for using intrinsic motivational forces for mutual benefit of language arts and social studies.)
11. Discuss adjustments pupils should have to make if they were to live in Japanese cities and attend Japanese schools for a year. Use same idea for Japanese pupil in Macomb.
12. Just as at the end of sixth grade an international hour for parents could be held, so at the end of this unit, a Japanese "hour" could be planned. Such an activity is often desirable as a culminating project. Complete plans must be cooperatively made.
13. Determine and discuss contributions made to the world by Japanese people. This encourages individual and group research, organization and presentation.

14. Comparing and contrasting homes, domestic animals, means of travel, etc. may be challenging for some pupils.
15. Looking for Japanese-made articles used in the home or school and those offered for sale in local stores affords excellent opportunity to clinch the concept of interdependence in this modern world. Also helps to comprehend "low labor" costs.
16. A particular group or the entire class may be highly interested in dramatizing a few selected aspects of Japanese life. Often such activities become the basis for a school assembly or a P.T.A. program. Here is one suggestion. Dramatize the events of a day in the life of a Japanese farmer and/or of a Japanese factory worker.
    Scene 1—Breakfast
    Scene 2—At work (fields or factory)
    Scene 3—Evening
17. All sixth grade pupils are interested in learning and sharing with the class their knowledge of Japanese festivals, sports (kite flying, wrestling) and special holidays. Stimulates purposeful reading.
18. With the aid of realia, a discussion of beauty and fine craftsmanship in Japanese art is in order. Use school community resource book to secure names of persons who have visited Japan.
19. With the help of the art supervisor some pupils may wish to express creatively their ideas of Japan. Mt. Fujiyama, pearl divers, rice paddy scenes, toiling coolies exemplify possible topics to be selected.
20. Altho a bit more difficult for oriental countries, pupils often like the chance to sing songs and learn folk dances of the country being studied. Use the music teacher.
21. Learn the story of the Japanese cherry trees in Washington, D.C.
22. Raise silk worms in class. Write an original story about silk. Use some or all of these words if they will help you—

mother moth	"throwing"
eggs	washing
mulberry leaves	"weighted"
much work	weaving
reeling	baled

23. Contrast the natural resources of Japan with those of the United States (and with U.S.S.R., China, India, western Europe if previously studied). May make product charts or maps to help visualize "the contrasts."
24. Investigate the writing of Japan. Enough interest may be generated to have a committee or the entire class write some simple passages in Japanese. Use these ideographs in simple letter writing.
25. Contrast farm life in central Illinois with that on the plain of Japan. One approach may be to describe what you see as you leisurely fly over the respective country sides. Contrasting model farms may be constructed with appropriate labels and explanatory paragraphs.
26. Investigate some of the superstitions that have helped prevent Japan's complete acceptance of modern viewpoints. Encourage wise library usage.
27. Write an explanation to show why the people of Hokkaido live somewhat differently from other Japanese on Honshu. Why are the farms on this large northern island more like those in parts of the United States, such as in New England?
28. Clearly describe how modern Japanese cities are like American cities. Now tell how they are different. Secure illustrative pictures to help the class visualize. Child can use pictures as basis for his discussion while a fellow student operates the opaque projector.
29. Earthquakes are quite common in Japan. Report to the class reasons for earthquakes. Possibly make or secure a cross-sectional drawing as an aid to understanding. Perhaps arrangements can be made for an interview with a college geography or

geology professor. Utilizing carefully prepared questions based on in-class reading and desire for specific further data, secure needed information and report to class. Excellent language arts—social studies project.

30. Fujiyama may be treated in a similar manner. It may be wise to have this report supplemented by several well-selected color pictures from a National Geographic. The high school science teacher's advice and equipment may help to stimulate via test tubes and bunsen burner volcanic action.
31. Sources are decidedly limited, but reports of contributions of Japanese-Americans to our country (especially in California and during World War II) may be utilized to build positive attitudes and appreciations.
32. Too often we neglect to build unit relationships by taking time to discuss pictures in the textbook. Especially desirable after the pupils have secured a general understanding of Japan, a class period or portion thereof may be spent profitably discussing the interrelationships of the natural and cultural features in each selected picture. A stimulating variety of this approach is to use a series of carefully selected pictures (a few well-selected ones are better than many lightly slipped over) which refer to particular aspects of Japanese life covered in the unit. Show these on the opaque projector. The teacher should know what emphasis and relationships she intends to clinch with each picture. Every pupil can easily be encouraged to contribute some comment. It may be that "volunteer" pupils who have studied a picture ahead of "show" time, may be the "expert" with the teacher and the class rounding out ragged concepts. Do *not* use this as a *"motivational"* preparation for a test!
33. With the aid of several cooperating mothers or with help from the school home economics teacher, plan a Japanese meal. At such an affair original stories or poems about Japan may be shared with the others. It may be that Japanese style clothes, products of a class project, will be worn. Class recorded Japanese music may be played at this time.

Final Test

Note: These test items are intended to sample general principles, appreciations, attitudes and a few facts about Japan. According to the class being taught, the items may be modified with substitutions and subtractions. It is doubtful if more than twenty-five or thirty test questions should be used. In constructing this test consideration has been given to factors related to the "normal" reading levels of sixth grade pupils.

Completion

Decide on the correct word or words needed to fill the blank. Now write this word or words on the line to the left of the number.

Honshu 1. The most important island of Japan is ————————.

fish / rice 2. The Japanese have a greater variety of food than most people think. Yet two foods are very common. Name them. ———— and ————.

Korea 3. ————————is both a peninsula and a country whose location and welfare are important to both Japan and the United Nations.

mulberry leaves 4. If you were a silk worm, you could feast on ———— for every meal.

Tokyo 5. The capital and largest city of Japan is ————————.

Multiple Choice

For each statement below there are several possible answers. Choose the one you

believe to be correct. Now write the correct *letter* for that answer on the line to the left of the number.

b 1. Japan is now having difficulty being friendly with which of these countries? (a) United States, (b) Union of Soviet Socialist Republics, (c) Brazil, (d) Australia.

d 2. When we say that the population of Japan is dense, we mean: (a) the people are ignorant, (b) there is much land for the Japanese to use, (c) most of the people are old, (d) there are many people per square mile.

a 3. Japan's greatest natural resource is her: (a) farm land, (b) copper, (c) forests, (d) coal.

a 4. As a guest in a Japanese home you would most likely be offered: (a) tea, (b) coffee, (c) coke, (d) milk.

d 5. On which of these islands would you find farms more nearly resembling American farms? (a) Honshu, (b) Shikoku, (c) Kyushu, (d) Hokkaido.

a 6. As Japan trades with her world neighbors, she must import great amounts of: (a) food, (b) silk, (c) toys, (d) tea.

b 7. Irrigation is a word that can best be used with which one of these words? (a) tea, (b) rice, (c) forests, (d) silk.

d 8. Japan is a great fishing nation. Which one of these answers has the least to do with fishing? (a) cormorants, (b) near-by cool ocean waters, (c) dense population, (d) Japanese will not eat other kinds of meat.

a 9. Japan will never become a top power in manufacturing because: (a) she lacks good coal and iron ore, (b) her people cling to old customs, (c) Japanese are not intelligent enough to excel in industry, (d) Japan has no good harbors for ocean trade.

d 10. On the shortest air route to Japan from St. Louis planes would fly nearest: (a) the Philippines, (b) Hawaii, (c) California, (d) Alaska.

TRUE—FALSE

On the short line just left of the number write your answer. If the answer is completely true, mark a +; if any part of the answer is false, mark a 0.

\+ 1. Japan is a mountainous country.

0 2. Japanese manufacturing and trade became less important after Perry's visit to Japan.

0 3. Today most Japanese farmers use modern machinery.

0 4. You would have difficulty finding modern department stores in Japanese cities.

\+ 5. Most Japanese homes have electricity.

\+ 6. In Japan more workers are employed in "light" industries than in "heavy" industries.

0 7. Most Japanese farms would compare in size with those in McDonough County.

\+ 8. The Japanese people are as intelligent as the citizens of any other nation.

0 9. The Sea of Japan is off the east coast of Japan.

0 10. Still worshiping their emperor as a god, the Japanese are not interested in a democracy.

\+ 11. The Japanese believe in the conservation of natural resources.

0 12. Few Japanese appreciate beauty in art, music or poetry.

\+ 13. To make her factories grow Japan must sell manufactured goods to other nations.

0 14. The mountains of Japan are old worn down ones.

\+ 15. Like all boys and girls, Japanese children play many games.

During the unit opportunities for evaluation of concepts and understandings may be possible thru imaginary letters written about specific topics, short paragraph explanations and individual oral explanations of thought provoking questions. Again the extent to which such devices can be employed will depend upon the class maturity, interests, understood purposes and background of experiences.

Thruout the unit, teacher guided pupil self-evaluation should proceed. Such check should refer to subject matter achievement, effective use of group processes, proper utilization of research tools, working for group's welfare, and desirable appreciations and attitudes.

BASIC MATERIALS AND TOOLS (UNCLASSIFIED)

1. Physical—political equal—area projection (world).
2. Global projection—world.
3. Wall maps of Asia.
   a. Physical—political
   b. Climatic (rainfall)
   c. Population
   d. Vegetation
   e. Industrial or commercial
   f. Outline
4. Physical—political wall map of Japan (desirable, but usually impossible to afford).
5. Sixteen or twenty inch physical—political globe.
6. Twenty inch "outline" globe.
7. Desk outline maps of Japan.
8. Access to audio-visual machines.
   a. 16 m.m. film projectors
   b. 32 m.m. filmstrip projectors
   c. Opaque projectors
   d. Tape recorder
   e. Record player
   f. Radio—television

POSSIBLE OUTLINE FOR STUDYING GEOGRAPHY OF A COUNTRY

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I. Location:
  A. Latitude and longitude (By shortest route, is country north, south, east or west of local community?)
  B. Portion of continent
  C. Neighboring countries (Kind of boundaries?)
  D. Bordered by what oceans?
    1. Characteristics of coastline?
    2. Other characteristics of that ocean?
  E. Distance by air line from local community to capital city of country being studied

II. Size and shape:
  A. Compare with home country, home state and home county
  B. Distance inland of area farthest inland

III. Land surface and drainage:
  A. Characteristics of important land features such as plains, mountains, plateaus, valleys, hills, etc.
  B. Important streams
    1. Direction of flow
    2. Depth
    3. Straightness
    4. Seasonal volume
    5. Obstructions
  C. Other water bodies
    1. Lakes
    2. Swamps, marshes, bogs
  D. Underground water supply
    1. Quantity
    2. Quality
    3. Depth
  E. Springs

IV. Climatic conditions:
  A. Elements:
    1. Temperature—highest, lowest, seasonal, diurnal
    2. Rainfall—kind, amount, distribution
    3. Winds—frequency of different velocities, direction
    4. Cloudiness—amount, seasonal differences
    5. Humidity—usual amount
    6. Length of growing season
  B. Destructive storms
  C. Likelihood of years having a very different weather from usual
  D. Causes producing each of above (How each cause produced each weather and each climatic condition)

V. Soil:
  A. Characteristics which affect usefulness
    1. Depth
    2. Contents
    3. Drainage

B. Formation
VI. Native vegetation:
A. Kind
B. Characteristics which affect usefulness
VII. Rocks, minerals, fuels:
A. Kind
B. Quantity (Thickness of deposit)
C. Quality
D. Nearness to top of ground
E. Use and marketing as affected by four above conditions
VIII. People:
A. Outstanding characteristics
B. Chief weakness
C. Greatest achievements
D. Everyday living:
1. Food
2. Clothing
3. Buildings
4. Furniture and equipment used
5. Home surroundings
E. Policies and practices:
1. Government
2. Education
3. Family group arrangements
4. Recreation
5. Religious attitudes
6. How people at present are changing in their viewpoints and attitudes
IX. Transportation characteristics and development of each kind:
A. Highways
B. Railways
C. Waterways
D. Airways
X. Communications:
A. Mail
B. Telegraph and telephone
C. Radio
XI. Leading occupations:
A. What in preceding ten divisions specifically favors each occupation?
B. Leading products of each occupation?
C. What methods are used in each occupation?
D. What changes are being made?
E. What problems exist (possible causes and solutions)
XII. Place in world neighborhood:
A. Trade—how planned, how favored?
B. Attitude toward other nations (Also attitude of other nations toward nation being studied)
C. Ideas and improvements for world neighborliness given or encouraged?
D. Relation to United States:
1. How that nation influences us
2. How we influence that nation

The above outline is suggested as a tool for teachers who wish

to know when they are teaching geography. Many teachers have become confused by writers attempting to fuse geographic information into social studies content. Often the result is that geographic content is lost, the pupils and teachers confused and geographic thinking—the objective of geography teaching—is not possible.

In teaching geography with the *logical* plan, the classes begin with item I and continue thru the outline. Often supplementary references must be used to get all the material and information as outlined.

In teaching with the *psychological* plan, the class begins with topic VIII. The last five topics are not enough. *All* of the information belonging to the first seven topics must be used to explain the last five groups of topics. The psychological plan is more interesting but more likely to be incomplete.

After using the outline for two or three countries, the class group will get the pattern of study for any country.

PRINCIPLES: AN APPROACH TO ECONOMIC GEOGRAPHY

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There are many roads which may be traveled in the study of geography. Some of them are broad and smooth, the map having been filled in after careful surveys to show the major attractions, the treacherous stretches, the best routes by which the traveler may achieve his specific goal. But there are others which are mere lanes, seldom frequented ways, poorly charted and beset by many obstacles.

Among the more neglected trails is that of "Principles of Economic Geography." In the discussion to follow, we are interested in the definition of this portion of geographic work, its implications and applications. Principles of Economic Geography, as well as principles of geography in general, is one of the least developed phases of our discipline altho Economic Geography as a simple descriptive and factual study is one of the more popular geographic fields of research and teaching. Hartshorne recognized the place and need of geographic principles when he wrote: "Consequently, for those among the ranks of geographers who by reason of temperament, ability or training prefer to study the generic, with the

opportunity to develop scientific principles or laws, there is plenty of work to be done in geography.''[1]

WHAT ARE PRINCIPLES?

Economic Geography is that branch of geographic endeavor which probes the distribution of, and relations between, the earth resources and the occupations by which man maintains himself. Of necessity, it deals with two quite diverse groups of factors. One is the natural resources, so unevenly spread over the globe, whose quality is as variable as quantity or intensity and whose value must be measured in terms of specific population groups. The other is man, whose general knowledge, development of technology, desires, reactions to natural settings, etc. vary to a considerable extent among the peoples thruout the world. These cultural factors may reflect the natural setting to a considerable degree.

Upon investigation of the economic relationships between the earth and man, it is evident that certain general patterns appear over the earth where there is recurrence of specific earth-man combinations despite so many inconstants in the equation. The underlying fundamentals of such distribution may be spoken of as principles altho the exact interpretation will vary in analysis among geographers.

Webster's Dictionary states that a principle is a fundamental truth, a primary or basic law. For the economic geographer and many another scientist this lacks exactness and refinement of definition. It is necessary, therefore, that we restate the definition of ''principle'' in terms of our specific study.

Little has been published on the matter. The lack of emphasis upon this phase may be attributed to the youthful age of Economic Geography as a whole, as Renner suggests,[2] with the great need in the past having been for the accumulation of factual material over the world. Karl Ritter, who lived before the commonly accepted beginnings of modern Economic Geography (probably best dated by Chisholm's *Commercial Geography* published in 1889), was evidently hampered by this. Concerning Ritter's attempts to formulate principles, Hartshone commented: ''Convinced that there were laws governing the relation of human and non-human phenomena

[1] Richard Hartshorne, *The Nature of Geography* (Lancaster, Pennsylvania: The Science Press Printing Company, 1939), 434.

[2] George T. Renner, "Some Principles and Laws of Economic Geography," JOURNAL OF GEOGRAPHY, XLIX (1950), 14-22.

on the earth, Ritter was in no great hurry to establish them, but rather felt that, if he could bring together all the facts and relationships observed in areas, these would make it possible to state such laws. Attempts to develop these laws first—his own, perhaps, as well as others—had proven unsuccessful. . . .'"[3]

There are still considerable portions of the earth for which we have little accurate data. However, a great deal of material has been accumulated in permanently settled areas and we now have a reasonably complete picture of the distribution of earth resources and peoples in the the ecumene. We should be able to keep abreast of changing developments as well as fill in the historical picture by additional research. And if the burden of the excuse for lack of work on principles rests upon the time element (the age of the field), we may now look forward to more research on this phase.

On the other hand, the dearth of principles may reflect the hesitancy of many economic geographers to risk running aground upon something that might be extremely controversial when it is much safer to do regional or systematic studies. Certainly, several authors write of principles without even defining one or even giving specific examples. One gratifying exception is Laurent Deschesne in his *Economie Geographique*. One of the difficulties facing the student entering the field of geography is the scarcity of acceptable definitions and the inadequacy of those existent, along with the lack of unanimity of opinion and purpose among geographers. Altho a certain divergence of opinion is probably a healthy sign, it may also point out a definite weakness.

Or, of course, it may be that a general awareness of the importance of principles does not exist. If that be true, it is more urgent than ever that some work be done in the field.

Hartshorne did not define either principle or Economic Geography in his *Nature of Geography* and altho he said that ". . . principles have been developed in every phase of economic geography. . . ."[4] it is exceedingly difficult to find any of them published in the English language. Few sources at hand are of any aid. They either ignore principles or treat them as tho they were the commonest of geographic materials without producing them for investigation. No doubt, in their own minds the various authors are thinking of specific principles which are perfectly clear to them, but they fail

[3] Richard Hartshorne, *op. cit.*, 54-55.
[4] *Ibid.*, 384.

to list them for the reader. We are left then, mainly upon our own resources.

A principle is general rather than particular, a rule rather than a fact. It involves a type of cause-effect relationship. Indeed, relationship stands as the core of any principle of Economic Geography. A law is more restrictive; a fact may have application to only one specific situation. It should not be construed, however, that a principle lacks definiteness.

Since anything geographic should be tied to the earth, the principle of Economic Geography should be approached from the earth —man relationship rather than from the man—earth relationship. It should be valid in any area where the specific combination of determining elements involved exists. A principle should not be in a position to be compromised any more than truth or perfection. There should be no such thing as a principle being true in *almost* all cases: if the proposed principle doesn't cover the entire situation it should not be considered a principle. There is more virtue in making a definite statement of principle and later finding it to be incorrect than in always leaving room for exceptions and never being concrete. There are weak and strong principles, but this distinction should be based upon the amount of data used and the possible percentage of error involved in arriving at the principles.

The formulation of principles must be made from a careful study of material available on the various subjects under consideration. One should not decide that thus-and-so is a principle and then study the facts to prove the point. The available materials should be investigated first, noting if any general tendencies appear which are widespread and positive enough to be formulated into principles. If one appears evident, it should be tested in all applicable situations.

In conclusion, concerning the general nature of principles, we may define a principle of Economic Geography as a statement of a geographic relationship which influences the distribution of an economic activity and which is valid in all situations where the specific combination of factors occurs.

Why Are Principles Important?

It would be well at this point to justify our concern about principles. We seem to have achieved at least modest success in the development of Economic Geography up to this time without their inclusion. Why, then, should we emphasize them now?

One very good argument is that the development of principles would enable us to look at Economic Geography more objectively. Geography, like Topsy, has "just growed." From a census of places it has evolved into a complex structure bordering upon nearly every physical and social science. It appears that more effort has been expended in pushing the bounds of geography outward than in consolidating the knowledge into a well-defined field of study. In our intensity of purpose to enlarge scope, we have too often failed to ask ourselves where a study ceases to be geography and is more related to some other science.

Since the geographer of necessity must delve into many other subjects this infringement may be partly excusable. But when we fail to keep contact with the earth the criticism leveled at us by fellow scientists may be justified. In Economic Geography, for instance, we exceed our legal limits when we burden our subject matter with mathematical and chemical formulae of manufacturing processes.

First, then, principles would enable us to divorce the geographic from the non-geographic and would tend to unify and define the field. They would not only delimit our work but also would provide us with a survey of how complete the accumulated data are.

Secondly, principles would aid us in systematizing our approach. They would permit a crystallization of thought and lead to a more logical and meaningful consideration of the facts. Particularly, they would emphasize, or point-up, the relationships between cultural and natural factors in the landscape.

Thirdly, principles would enable us to hold a concept of world distribution and relationships in Economic Geography without a multiplicity of detail. It is much easier to have a general rule which can be fortified by specific examples when necessary than to try to remember all of the individual cases as a summation of the rule.

Fourthly and our concluding reason for deriving principles is perhaps the most important of all. We frequently say that a science should be able to predict. We need not inquire into the validity of this concept here but it is a commonly accepted part of a mature science. In geography, as Hartshorne points out, it is difficult to predict without a margin of error because of the abundance of inconstants.

However, there are definite interrelationships which "repeat themselves in similar specimens in different parts of the world, so that it is possible to express them in universals and thereby to de-

velop principles.'"[5] These principles would permit us to state with a high degree of certainty what results will be obtained when certain situations recur. Karl Sapper evidently had somewhat the same idea in mind when he wrote: "The objective of the economic geographer is, however, not only to describe the degree to which man has exploited the possibilities of the physical environment but also to anticipate the future. . . ."[6]

The Limitations of Principles

We should not, however, think that principles can fully cover the field of Economic Geography. There are many individual facts which cannot be categorized and must stand alone outside of the main body of principles. Thus, to limit a study to deduction might well overlook some of the major geographic phenomena.

Too, the very nature of geography makes it impossible to arrive at many concepts which are valid in every instance of application. There are too many variable factors. It is too often felt necessary to add "other things being equal" or some such phrase which reduces the positiveness of the statement to a shambles.

Hartshorne found that there was difficulty in expressing principles for areas or regions, since many apparently similar areas were alike in enough factors to give them the same economy or other dominant aspect while actually there existed a considerable number of unlike characteristics among the regions. That limitation of principles is hardly valid here since we are considering principles thru a systematic rather than a regional analysis.

Principles should not be studied out of their context. They are a means for emphasizing relationships, not a substitute for actual data. They have no real value except as they may be applied to the earth in actual circumstances.

Some Examples of Principles of Economic Geography

Since we have been so critical of principles and the work hitherto done on the subject, it is only right that we should state a few examples. In the following, a very brief statement of support is given to show the trend of thought behind the principle.

1. *Latitude is compensated by altitude in the low latitude pro-*

[5] *Ibid.*, 434.

[6] Karl Sapper, "Economic Geography," *Encyclopaedia of the Social Sciences*, VI (New York: Macmillan Company, 1939), 628.

duction of crops best adapted to middle latitudes. There are certain crops, commonly referred to as middle latitude crops, which appear to find their optimum conditions for growth in intermediate latitudes. However, since altitude can produce temperature changes which correspond to those of latitude, it is possible to find in the tropics highlands which possess the same basic climatic characteristics, especially those of temperature, as the middle latitudes and which can produce middle latitude crops with success.

2. *The less dense the population, the more extensive agriculture may become.* If the population density is very high, the land will probably be divided into small holdings and each plot worked intensively to obtain the maximum return in the most efficient form. Where the population density is very low, land holdings will be large and not only is it more difficult to work large acreages intensively but the sparse population will not demand a high return per acre and a product representing the most efficient form of produce. Thus, areas of sparse populations usually engage in grazing or crop agriculture that employs wide-scale use of machinery.

3. *The degree of self-sufficiency which an area can attain is proportional to the variety, quantity and quality of its natural resources.* Complete self-sufficiency is the total lack of reliance upon any outside area for raw or finished materials. It often implies a low standard of living since few political areas are large enough to include a full range of agricultural and manufactural materials. However, the greater the variety of these resources the closer the country can come to economic independence.

4. *The more distant and inaccessible an area, the less perishable and/or more valuable must be the form of its export products.* Cost of transportation plus the perishableness of many products makes it difficult for areas far distant from the major markets to enter trade. As a rule, the export has to be very valuable to stand the cost of transport, especially over land, or of a non-perishable nature if the distance is great and slow transportation is used. Of course, refrigeration and canning are important in making many goods non-perishable.

5. *The bulkier the mineral in proportion to its unit value, the shorter the distance economically feasible to transport it.* Few minerals are mined in a pure state but are mixed with much foreign matter which must be removed before the mineral goes thru primary manufacturing processes. Because the foreign material is just

so much waste weight, the cost of transporting the unconcentrated ore is out of proportion to the actual mineral content and if great distances are involved the cost may exceed the value of the mineral.

6. *The greater the inaccessibility of a locality the greater the dependence it must place on its resources.* The accessibility of an area largely determines the amount of trade it can carry on with outside areas, providing, of course, that it has surpluses. If its accessibility is poor, it must develop its own resource to a high degree in order to meet as many of its needs as possible.

SUMMARY

The main purpose of this study has been to develop an awareness of the nature of principles and their application to Economic Geography. We have attempted to show in this work that principles are important because they are the core of systematic learning and altho they have their limitations they deserve a far greater place in the study of Economic Geography than has been accorded them by most authors. By our own interpretation, an attempt at formulating principles has brought out not only the nature of principles but also the difficulty in arriving at them.

POTENTIAL USES OF GOVERNMENT LIBRARIES FOR GEOGRAPHICAL RESEARCH

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A questionnaire circulated in 1945 to the membership of both the Association of American Geographers and the American Society for Professional Geographers asked which libraries were deemed particularly well equipped for geographical research. Responses named only two dozen libraries in the United States; 13 in universities, six in Federal agencies, three privately operated, one municipal, and one in an international agency. Several libraries with outstanding collections of maps and geographical materials were not mentioned. In Table I the libraries are ranked according to the number of questionnaire respondents that named them.[1]

[1] J. K. Wright and E. T. Platt, *Aids to Geographical Research* (The American Geographical Society, 1947), 276.

TABLE I. RESEARCH LIBRARIES

Figures in parentheses indicate the number of geographers that mentioned each library. Those with equal mention are ranked together alphabetically and federal government libraries are italicized to emphasize their relative standing.

1. *Library of Congress* (85)
2. American Geographical Society (53)
3. Harvard University (34)
4. *U.S. Department of Agriculture* (31)
   University of Chicago (31)
6. University of California (26)
7. Clark University (23)
   University of Michigan (23)
9. New York Public Library (19)
10. *U. S. Geological Survey* (17)
11. Columbia University (15)
    U. S. Weather Bureau (15)
13. Yale University (14)
14. University of Wisconsin (13)
15. Blue Hill Observatory (10)
16. Crerar Library (9)
17. *U. S. Dept. of Commerce* (8)
    U. S. Dept of State (8)
19. Ohio State University (6)
    Pan American Union (6)
    University of Texas (6)
22. Huntington Library (5)
    University of Illinois (5)
    University of North Carolina (5

Altho some changes might result if an identical questionnaire were circulated now, a closer correlation would probably continue to exist between the distribution of geographers and their selection of libraries for research than between the intrinsic excellence of those libraries and their rank in Table I. That is a serious handicap to scholarly achievement, and the following description of selected libraries is offered in the hope that better acquaintance with the available collections and services of many of the 238 libraries in the District of Columbia will lead to more use of their excellent facilities for geographic research.[2]

LIBRARY OF CONGRESS

The number one center for geographical research is occupied by the Library of Congress where materials of geographical significance are widely distributed thru the 31,760,000 items (including more than 9,000,000 volumes) that comprise its extensive collections. This esteem for the Library of Congress as a center for geographical research arises in part from the size and scope of its collections, and in part from the availability of its resources. The Library extends its services far beyond the District of Columbia thru such channels as:

1. The sale of catalog cards for its holdings of research materials to more than 8,500 subscribers thruout the United States. Cards covering the Library's holdings on any given subject may be obtained at a cost of five to seven and a half cents each by direct application to the Card Division.

[2] *Library and Reference Facilities in the Area of the District of Columbia,* 4th Edition, Loan Division, Library of Congress, Washington 25, D.C., 1952. $2.25.

2. Bibliographic lists, frequently annotated, supply additional information about special collections, world regions or special subjects. Since the bibliographic publications are prepared in various divisions, requests concerning special areas or subjects can be handled most effectively if they are addressed to the Director, Reference Department.
3. Thru the National Union Catalog of more than 13,000,000 cards one can determine the location of materials possessed by many libraries. Requisitions should be channeled thru a local library after a preliminary search has been made there. It may then be possible thru the use of the Union Catalog to locate desired items much nearer to prospective users than in the Library of Congress.
4. Most materials may be borrowed thru inter-library loans for the postage charge.
5. Items not covered by current copyright restrictions may be photocopied at the Library. Requests for photostats, photographs, slides, microfilm and ozalid reproductions may be addressed directly to the Photoduplication Service, Library of Congress.

Furthermore, the Library has several divisions of direct utility to geographers. The most frequently used is the Map Division, which has custody of more than 2,225,000 maps, 18,000 atlases and the current issues of 96 geographical periodicals and journals. The Map Division also maintains a dictionary type file (currently containing more than 45,000 cards) of articles in periodicals, books and pamphlets relating to maps, map publishers and cartographic techniques. The bibliography is available on microfilm at $7 per reel of 3,000 entries. The Map Division has also prepared a number of bibliographic aids which are now available in most large libraries thruout the United States.[3]

[3]Philip Lee Phillips, *A List of Geographical Atlases in the Library of Congress*, with bibliographical notes (Washington: Government Printing Office, 1909-20), 4 volumes. $4.85. (Supplement in progress.)

Clara Egli LeGear, *United States Atlases: A List of National, State, County, City and Regional Atlases in the Library of Congress* (Washington: Government Printing Office, 1950), $2.25. (Supplement and Union List in progress.)

Clara Egli LeGear, *Maps: Their Care, Repair and Preservation in Libraries* (Washington: Division of Maps, Card Division, Library of Congress, 1950), 30 cents.

Marie C. Goodman and Walter W. Ristow, *Marketing Maps of the United States: an annotated list.* (Second ed.; Washington: Card Division, Library of Congress), 70 cents.

Other Library of Congress divisions of special interest to geographers are the Hispanic Foundation, Orientalia, European Affairs, Slavic Studies and the Legislative Reference Department. Only the Orientalia Division has custody of specialized collections, but all the regional divisions possess highly trained research staffs that handle reference and bibliographic requests in addition to preparing reports that frequently contain digested and interpreted information of superlative value to regional geographers.

UNITED STATES DEPARTMENT OF AGRICULTURE

The federal library rated next after the Library of Congress by geographers is that of the Agriculture Department. Its collection of approximately 1,000,000 volumes and 18,000 current periodicals is oriented primarily toward agriculture but geographers interested in crops, soils, climate, vegetation and related topics will find in the Department of Agriculture library a wealth of statistical data, field reports and compendiums of information.

The Librarian, Dr. Ralph Shaw, emphasizes prompt reference service, and the library welcomes requests for specific information, readily issues stack permits to qualified scholars and operates an interlibrary loan program which rivals that of the Library of Congress, even tho the basic collection of books is only one-ninth as large.

Of special value to geographers is the collection of foreign publications obtained thru more than 4,000 bilateral exchange agreements. Altho the library has no separate map unit it does possess the most nearly complete collection of domestic and foreign soils bulletins (including maps) in the United States, and a large number of aerial mosaics and strip maps. The Department of Agriculture has four photo libraries from which pictures may be obtained at low cost for classroom use or illustration of publications, provided the source is acknowledged. These photo libraries are maintained by the Forest Service, the Soil Conservation Service,

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Walter W. Ristow, *The Services and Collections of the Map Division* (Washington: Government Printing Office, 1951), 40 cents.

Walter W. Ristow, *Three-dimensional Maps: An Annotated List of References Relating to the Construction and Use of Terrain Models* (Washington: Card Division, Library of Congress, 1951), 35 cents.

Clara Egli LeGear, *The Hotchkiss Map Collection: A List of Manuscript Maps, Many of the Civil War Period, Prepared by Major Jed. Hotchkiss* (Washington: Card Division, Library of Congress, 1951), 60 cents.

the Rural Electrification Service, and the Production and Marketing Administration.

UNITED STATES DEPARTMENT OF INTERIOR

The entire library facilities of the Interior Department deserve the attention of geographers, especially those concerned with natural resources, physical geography, topographic and geologic maps or the proper spelling of place names. During the past year a central library has unified the separate libraries that formerly existed in bureaus such as Mines, Reclamation, Indian Affairs and the Fish and Wildlife Service. The central library of some 400,000 volumes and 3,500 periodicals is focused upon resources and contains, in addition to a large number of foreign publications, the most nearly complete collection in the United States of domestic books, pamphlets, periodicals and government publications in the resource field.

Three other library units of the Interior Department are of special value to geographers. That of the United States Geological Survey, with nearly 250,000 bound volumes, and 75,000 pamphlets, and 100,000 maps is well known to physical geographers, as evidenced by its position as the third ranking federal library in Table I. Associated with the United States Geological Survey but administratively separate from its library is the Office of Map Information.[4] It maintains current files of information on the status of topographic and planimetric mapping, geodetic control work and all aerial photo projects in the United States, whether governmental or private. The Office also prepares exhibits, publishes indexes showing available coverage by topographic maps, geologic maps, air photos and geodetic control nets. Its staff is familiar, in a general way, with other map collections in the District of Columbia, and acts as the distributing channel for unclassified maps of the United States compiled by the Army Map Service and other Defense Agencies that are not generally open to the public.

Information on the proper spelling of place names, both domestic and foreign, is best obtained thru the United States Board on Geographic Names on the seventh floor of the South Interior Building. In addition to publishing gazetteers and general rules for

[4] Address information requests to Mr. J. O. Kilmartin, Map Information Office, United States Geological Survey, Washington 25, D.C. Maps, bibliographic controls and indexes may be consulted at Room 1028, General Services Administration Building at 18th and F Sts., N.W.

place name spellings, the Board maintains a card catalog of several million standard and official place name spellings, plus their variations. Both the staff of the Board on Geographic Names and the public have access to the Division of Geography library of approximately 15,000 books and pamphlets (in the fields of geography, exploration and linguistics) as well as some 115,000 maps and charts.

UNITED STATES DEPARTMENT OF COMMERCE

The library facilities of the Department of Commerce include a central library and several special libraries among which those of the Weather Bureau, Bureau of Census and Coast and Geodetic Survey are particularly well suited for geographic research. The central library of some 344,000 volumes and 2,500 periodicals and newspapers at 14th and Constitution Avenue, N.W., gives attention primarily to foreign trade statistics and census reports, yearbooks, directories and political affairs relating to trade. Scientific and technical publications outside the field of trade are retained in separate library units of the Commerce Department.

For example, the Weather Bureau Library in the Packard Building at 1250 24th Street, N.W., contains approximately 100,000 volumes and booklets in the fields of meteorology, climatology and hydrology, plus a large file of weather maps of the United States and many foreign countries. A file of raw data reported by all regular and cooperative stations is maintained on machine punch cards at the National Weather Records Center, Arcade Building, Asheville, North Carolina, and requested tabulations can be run off at a nominal cost.

The Commerce Department also has in the Census Bureau (Federal Office Building 3, Suitland, Maryland) three library units of interest to geographers. The Office of Coordinator of International Statistics has a large collection of statistical yearbooks received on exchange from foreign countries, and samples of forms as well as descriptions of procedures used in making statistical surveys. The Government Division administers a reference collection of approximately 78,000 books and pamphlets and 750 periodicals concerning state and local government units and the general field of public administration. The Geography Division has a unique collection of maps and air photos, with a complete file of current Sanborn Atlases of American cities, including the most recent revisions; a large collection of city plans; a nearly complete file of Coast & Geodetic Survey charts, U. S. Geological Survey quad-

rangles, Soil Conservation Service maps, state highway and county road maps and outline maps of minor political subdivisions and census tracts in the United States. The air photo collection is retained primarily for the use of Census Bureau personnel, but references to the primary sources can be obtained if duplicates are desired for special research projects.

The Coast and Geodetic Survey in the Commerce Department maintains a Map Information unit and a technical library. The map collection exceeds 250,000 titles, selected to serve the map compilation and research needs of the Survey. Emphasis is placed on map and chart coverage of domestic areas, but is by no means limited to coastal zones since the survey compiles and publishes aeronautical charts for the whole United States as well as navigational charts for its coastal waters. The technical library possesses approximately 97,000 volumes and serial publications in the fields of geodesy, geomagnetism, hydrography, oceanography, cartography, seismology and scientific expeditions. The library reading room in the Commerce Building and its card catalogs are open to the public, but the library is intended primarily for staff use and special permission must be obtained from the librarian to make use of the collection for research of a private nature. Scholars with a special interest in oceanography or in navigation conditions in foreign waters would be referred to the semi-public library of the Hydrographic Office, Navy Department, Suitland, Maryland, where one of the world's finest collections of such materials is maintained.

UNITED STATES DEPARTMENT OF STATE

The library collections of the United States Department of State are composed chiefly of current books and documents dealing with foreign lands and peoples, plus basic works in economic, political and social fields that are fundamental to foreign policy formulation. The Technical Assistance Program (Point IV) has introduced a need for additional technical studies on relatively underdeveloped foreign areas and a vigorous procurement program has been under way in that field.

The library is housed in State Annex No. 1 at 401 23rd Street, N.W. Its collections contain approximately 400,000 books and 1,200,000 documents. In the reading room, which can seat about 30 people, are about 10,000 reference books and a remarkably effective card catalog. It divides the world into regions, subregions, coun-

tries and their administrative subdivisions. Consequently all catalog references to material dealing with any given subject are conveniently grouped on an area basis.

The map library, formerly maintained by the Office of the Geographer, was transferred in part to the Library of Congress and in part to a defense agency library after World War II, but maps and map information may still be obtained for special purposes thru the Special Assistant for Maps (Dr. Otto E. Guthe.)

Valuable help in obtaining materials for special research and educational purposes may be obtained from Mr. E. M. Kirkpatrick, External Research Staff, Office of Intelligence Research, United States Department of State. That office may be of assistance in obtaining distribution copies of documents and maps prepared in the State Department, in expediting inter-library loan of relatively rare publications and in providing lists of State Department facilities which are available to educators and institutions.

The National Archives

The collections of the National Archives include noncurrent federal records received from Congress, the White House, executive departments, Federal Courts and independent agencies. They range in date from the seventeenth century records of the government of the Virgin Islands to post-World War II maps and documents. Among the government records at the National Archives are approximately 850,000 maps and charts, of which approximately 65 per cent are manuscript or annotated. This unique map collection, under the custody of Herman Friis, and basic textual materials filed with deposits of the originating federal agencies, constitute an exceptionally fruitful source for research in the historical geography of the United States and its international relations.

The Smithsonian Institution

Many publications of significance in geographical research are included in holdings of the Smithsonian Institution. The maps, terrian models, reports of scientific expeditions, special collections on botany, geology, anthropolgy and an index of geographical illustrations compiled during World War II, are among the materials most frequently used by geographers.

The long experience and cooperative attitude of librarians at the Smithsonsian Institution largely compensate for the fragmenta-

tion of holdings into more than 35 collections to serve specialized research groups in the Institution. The nature, utility and organization of these collections is best reflected in the history of their evolution.

Within two years after the Smithsonian Institution was founded in 1846, it began to publish the results of its scientific work. With its own publications as a nucleus for exchange, the Institution gradually evolved both an international and a domestic exchange program which has accumulated more than 1,250,000 publications. They are mainly the proceedings and transactions of learned societies, series of scientific and technical journals and highly specialized collections donated by eminent scientists. Among the latter are some 40,000 volumes accumulated by Major J. W. Powell concerning the terrain and Indian ways of life in Southwestern United States, the Schaus collection on insects and the J. D. Smith library of botanical literature.

In 1866 Congress transferred the Smithsonian Library to the custody of the Library of Congress, where continuity of publications increased the original deposit from 40,000 to approximately 1,000,000 volumes. For all practical purposes of use, it may now be considered as part of the Library of Congress collections. Meanwhile, however, basic works for reference use in offices and laboratories were retained at the Smithsonian Institution. Separate working libraries for more than 35 research units are administratively coordinated under Miss Leila F. Clark in the Arts and Industries Building near 10th and Independence Avenue, S.W. Their total holdings exceed 250,000 volumes, including a complete file of United State Government scientific publications since 1858, basic works in biological, geological and anthropological sciences, the arts and industries, engineering aeronautics, history, museology, scientific travels and geography. The collections are open to the public only for reference use or thru inter-libary loan.

NATIONAL COUNCIL AT WORK

The secretary's report of the Thirty-eighth meeting of the National Council of Geography Teachers, which appeared in the November 1952 issue of the JOURNAL OF GEOGRAPHY referred to prizes awarded for outstanding publications. The profession needs more and more teachers who are willing to aspire for these awards and to achieve them in the spirit which has prompted the giving of them. Why not put on paper that excellent lesson you gave, the description of a device you find useful, or the regional study you have been making, and send it to the Editor of the JOURNAL?

The secretary also referred to Committees of the Council. Teachers of geography most certainly will find in the list of committees given below one or more to which you can make salient contributions. Then again, you may want information from the committee regarding its work and findings. Names of committees and their chairmen are as follows:

1. Planning—Dr. Zoe Thralls, Department of Geography, University of Pittsburgh, Pittsburgh, Pennsylvania
2. Publications—Mr. John Streitelmeir, Valparaiso University, Valparaiso, Indiana
3. Research—Dr. Earl B. Shaw, State Teachers College, Worcester, Massachusetts
4. Membership—Miss Ina C. Robertson, Teachers College, Valley City, North Dakota, and Miss Mamie Anderzohn, William Beye School, Oak Park, Illinois
5. Inquiries—Dr. Fred K. Branom, Teachers College, Chicago, Illinois
6. Motion Pictures—Dr. Lyda Belthuis, State Teachers College, Duluth, Minnesota
7. Maps—Miss Margaret Chew, State Teachers College, LaCrosse, Wisconsin
8. Reading Materials—Miss Helen Mixter, 3 East 25th Street, Baltimore, Maryland
9. Geography Education in Secondary Schools—Dr. Lillian Worley, University of Tennessee, Knoxville, Tennessee
10. Teacher Preparation and Certification—Dr. Byron Barton, Eastern Illinois State College, Charlestown, Illinois
11. Television—Dr. Mildred Danklefsen, Western Reserve University, Cleveland, Ohio
12. Tests—Miss Viola Bohn, 1008½ Avenue C, Bismarck, North Dakota
13. Publicity—Miss Mamie Anderzohn, 112 North Marion Street, Oak Park, Illinois

One final question, which today should be considered by all geography teachers, is this—"What are the geographic contributions and responsibilities for developing character and citizenship—nationally, internationally?"

GEOGRAPHICAL PUBLICATIONS

Mildred G. Luckhardt. **Merrily We Roll Along.** Julian Messner, Inc., New York, 1952. 64 pages, 30 black and white pictures. $1.50.

Helen D. Olds. **Fisherman Jody.** Julian Messner, Inc., New York, 1951. 62 pages, 32 black and white pictures. $1.50.

Did you ever wish, as a child, to be a truck driver who after zooming uphill and downhill could stop at a diner and drink coffee from a thick mug? Or did you prefer to imagine yourself a sea captain bringing in a load of fish after undergoing storms and other adventures? Not only you but also children of today can have such vicarious experiences by reading *Merrily We Roll Along* and *Fisherman Jody*.

Each of these books contains excitement and suspense. Yet information about the work is woven into the story in a logical and practical manner. The need for appreciation of all the detailed work done by both truck drivers and fishermen as well as their contributions to the American communities is stressed. The pictures are action-packed helping to carry the plot of the stories. These books would be enhanced in value if the pictures of a technical nature were shown with more detail. Altho both authors were careful to include explanations of new words introduced into the stories, many other words such as *rucksack* and *donkey engine* could be made more meaningful thru the addition of a glossary. The print is large and clear. The rough paper used makes for easy reading. The vocabulary is based upon intermediate grade reading levels tho the story would also interest children of seventh and eighth grades. These books, while an excellent supplement to an intermediate geography text, could also be used advantageously for gathering basic information in unit studies in these specific areas.

Merrily We Roll Along has in it all the work and excitement of the trucking industry. Ricky learns all the intricacies of log keeping, responsibilities of fulfilling assignments and safety in driving while he is visiting with an uncle and aunt who own a diner for truck drivers. This book shows the importance of the truck driver as a community helper who is constantly trying to make his contribution to the welfare of his fellow men. It shows the influence of geographic conditions upon trucking and ways in which man can overcome some of the weather conditions.

Fisherman Jody not only gives a vivid description of present-day cod fishing but also compares present fishing techniques with those of thirty or forty years ago. Jody's first fishing trip gives the author an opportunity to describe the boat in detail as well as the work of each man on the boat. Children will enjoy reading about Jody's attempts to make friends with the cook and his cat, Torpedo, with success resulting from a dramatic incident. Thru Jody one sees the need for safety consciousness at all times. One also appreciates the contribution a small boy can make.

These books are highly recommended not only for their accurate and interesting portrayal of truckers and fishermen but also for the excellent way in which the authors help build attitudes of respect for all workers who make contributions to their communities.

RUTH SUGARMAN

New York State College For Teachers
at Buffalo

Rafael Pico. **The Geographic Regions of Puerto Rico.** Editorial Board, University of Puerto Rico, Rio Piedras. 256 pages, 174 maps, diagrams and photos. $1.50.

Teachers and students will welcome this treatise of Puerto Rico. It discusses the island's geography, section by section, giving an abundance of information.

Rand-McNally Cosmopolitan World Atlas. Rand-McNally & Co., Chicago, 1951. 376 pages. $12.50.

There are atlases for almost every taste and pocketbook, and no teacher or geography classroom need be without one or more. In general, one gets what one pays for in an atlas. An inexpensive one has fewer maps, poorer paper and occasionally poorer workmanship. An expensive atlas, of which the new Rand-McNally Cosmopolitan is one, gives one the best in maps and has many additional useful features. It is desirable that an atlas of this high calibre be in every geography classroom, but if not, it should at least be in the school or university library.

This atlas has 144 large (9″ x 12″) pages of maps with excellent color, clear lettering and effective uses of hachuring to show relief. There are seven pages of world maps in the Introduction and 26 pages of comparative world maps at the end. This latter group has been taken from the 1951 edition of Goodes School Atlas, and many of the maps have been published as wall maps. (This is a useful device for teachers who can have students use the same maps in an atlas that she points to on the wall.) The rest of the maps are arranged by continents—Eurasia—32 pages; Africa—3 pages; Australia and Oceania—3 pages; South America—7 pages; and North America—60 pages. There are 42 maps of states (or groups of states) in United States, and 8 maps of Canadian provinces, in the North American section.

In addition, there are 34 pages of "selected world information," which give lists of populations, islands, lakes, mountains, governments, climatic statistics, distances and explorations. A special section of another 15 pages gives similar information in greater detail for the United States. A final section has a glossary of foreign geographical terms, a glossary of map terminology and an explanation of the index and abbreviations. Almost half the volume of the book is contained in the detailed index which occupies the last 172 pages, and assures that any place on the maps can be found easily.

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E. W. H. Briault and D. W. Shane. **Geography in the Secondary School,** with Special Reference to the Secondary Modern School. The Geographical Association, c/o The Park Branch Library, Duke Street, Sheffield 2, England, 1952. 36 pages. 2 shillings postfree.

This report was prepared by members of the Association's Executive Committee. They believe that by the end of the course students should have had some training in the methods and ways of understanding things from a geographic point of view.

The divisions of topics following the Foreward are: I. The Place of Geography in the Field of Education; II. Good Geography Teaching; III. Content and Organization of the Geography Course; IV. Geography Out-of-Doors; V. Equipment; Conclusion; and Appendix.

A few of the ideas noted in this compact leaflet are: both systematic and regional geography have a definite contribution to make; geography links the natural science and humanities; study of geography sharpens observation; the sequence in geography depends upon the earlier foundations; details of a specific area or place are of more value and interest than generalized stories; the technique of generalizing needs to be delayed until upper levels and then developed gradually and with care; explanations must be logical, accurate and specific; and sketch maps and diagrams are an essential part of most every lesson.

Altho no course of study is outlined, in Part III the authors point out the problems of selection of units on systematic geography, and on local, homeland and world levels; show how to develop "concentric arrangement of regions linked by a topic or theme." Seven steps are suggested to guide the construction of a program.

The Appendix includes 1. a short bibliography of teaching methods in geography, all English publications, and 2. information about the Ordnance Survey and other maps and textbooks published in England.

M. MELVINA SVEC
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BOOKS AND PAMPHLETS RECEIVED

The Library of Congress. **Quarterly Journal of Current Acquisitions, Vol. 9.** Washington, D.C., 1952. No. 4. 230 pages and illustrations.

Samuel Van Valkenburg and Colbert C. Held. **Europe Second Edition.** John Wiley and Sons, Inc., New York, 1952. xiv and 826 pages, maps, appendix, bibliography and index. **$7.50.**

David A. Talbot. **Contemporary Ethiopia.** Philosophical Library, New York, 1952. x and 263 pages, bibliography and index. **$4.50.**

Z. Kostelski. **The Yugoslavs.** Philosophical Library, New York, 1952. xiii and 498 pages, bibliography and index. **$4.75.**

J. R. Nichol. **Stepping Stones to the South Pole.** Library Publishers, New York, 1952. xxi and 199 pages, bibliography, illustrations and index. **$3.75.**

Dr. W. R. Philipson. **The Immaculate Forest.** Philosophical Library, New York, 1952. 223 pages and index. **$4.50.**

M. Y. Nuttonson. **Ecological Crop Geography and Field Practices of the Ryukyu Islands, Natural Vegetation of the Ryukyus, and Agro-climatic Analogues in the Northern Hemisphere.** American Institute of Crop Ecology, Washington, D. C., 1952. 106 pages, maps, diagrams, and bibliography. No price listed.

Carl O. Sauer. **Agricultural Origins and Dispersals.** American Geographical Society, New York, 1952. v and 110 pages, diagrams, maps, and general references and notes. **$4.00.**

John E. Kieffer. **Manual of Political Geography.** Denoyer-Geppert Company, Chicago, 1951. 72 pages, 1 frontispiece world map in color, 39 outline maps and table of contents.

Arthur H. Robinson. **The Look of Maps.** University of Wisconsin Press, Madison, 1952. ix and 105 pages with diagrams and bibliography. **$2.75.**

Clarence A. Manning. **The Forgotten Republics.** Philosophical Library, New York, 1952. xii and 264 pages, index and bibliography. **$2.75.**

Breasted, Huth and Harding. **European History Atlas,** No. BH48p. Denoyer-Geppert Company, Chicago, 1951. lxvi pages with index and 62 pages of maps. **$1.75.**

——— **European History Atlas,** Student Edition, No. BH62p. Denoyer-Geppert Company, Chicago, 1951. xv pages with index and 40 pages of maps. **$1.35.**

Denoyer's **Student Atlas,** No. H93. Denoyer-Geppert Company, Chicago, 1949. xl pages with index and 40 maps. **$1.75.**

Denoyer's **School Atlas,** No. H92. Denoyer-Geppert Company, Chicago, 1947. xl pages with index and 32 maps. **$1.35.**

L. Philip Denoyer. **Abridged Elementary School Atlas.** No. H91. Denoyer-Geppert Company, 1952. xxiv pages and 16 maps. **$.60.**

Boies Penrose. **Travel and Discovery in the Renaissance 1420-1620.** Harvard University Press, Cambridge, 1952. xvi and 369 pages with illustrations, maps, bibliography and index. **$5.00.**

Peter Hood. **The Atmosphere.** Oxford University Press, New York, 1952. 64 pages with illustrations and diagrams. **$2.50.**

May, Faaland, Koch, Parsons, Senior. **Costa Rica: A Study in Economic Development.** Twentieth Century Fund, New York, 1952. xiv and 374 pages with graphs and index. **$3.00.**